

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Applicant: | James Christopher Deepak et al. | Examiner: | Long Pham |
| Serial No.: | 10/815,009 | Group Art Unit: | 2814 |
| Filed: | March 31, 2004 | Docket No.: | 1880.004US1 |
| Title: | CONDUCTIVE MATERIAL COMPOSITIONS, APPARATUS, SYSTEMS, AND METHODS | | |

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Final Office Action mailed April 19, 2007, the Applicant requests review of the final rejection of claims in the above-identified Application. No amendments are submitted with this Request, which is filed with a Notice of Appeal for the reasons stated below.

§103 Rejection of the Claims

Claims 1-5, 12, 14-17, and 40-43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in combination with McAndrew (U.S. Patent No. 6,066,402; hereinafter "McAndrew") and the Applicant's admitted prior art (hereinafter "AAPA") of the Application. First, the Applicant does not admit that Shimizu or McAndrew are prior art, and reserves the right to swear behind these references in the future. Second, since a proper *prima facie* case of obviousness has not been established, the Applicant respectfully traverses this rejection.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). The M.P.E.P. contains explicit direction to the Examiner in accordance with the *In re Fine* court:

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference

(or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438 (Fed. Cir. 1991)).

The requirement of a suggestion or motivation to combine references in a *prima facie* case of obviousness is emphasized in the Federal Circuit opinion, *In re Sang Su Lee*, 277 F.3d 1338; 61 U.S.P.Q.2D 1430 (Fed. Cir. 2002), which indicates that the motivation must be supported by evidence in the record.

No proper *prima facie* case of obviousness has been established because (1) combining the references does not teach all of the limitations set forth in the claims, (2) there is no motivation to combine the references, and (3) combining the references provides no reasonable expectation of success. Each of these points will be explained in detail, as follows.

The Combination of References Does not Teach All Limitations: Shimizu teaches the use of 90-97.5% lead. *See* Shimizu, Abstract. The Applicant was unable to find any evidence that Shimizu teaches or suggests any other percentage of lead. In addition to the prescribed quantity of lead, Shimizu teaches a terminal electrode finish of 1-8% tin and 1.5-2% silver. Independent claims 1 and 12 recite "a second lead finish including about 80%-87% by weight of lead ... and tin ...". Independent claim 40 recites "about 78%-82.9% by weight of lead ... and a balance of tine ...".

First, it is respectfully noted that Shimizu does not teach the finish being "attached *after* a first lead finish including tin is removed" as claimed by the Applicant in independent claims 1 and 12. Neither does McAndrew.

Second, Shimizu requires that the composition include at least 1.5% silver and 90% lead which, when combined with the minimum amount of antimony taught by McAndrew at Col. 3, lines 4-21 (i.e., 8.5%), leaves a composition that has no tin. Thus, combining these references does not provide what is claimed by the Applicant in each of the independent claims.

No Motivation to Combine the References: The Office asserts that "it would be obvious ... to include antimony as taught by McAndrew in the ... finish layer of Shimizu et al. to obtain the above benefit [i.e., to achieve good mechanical strength]." However, this suggestion to

combine the references overlooks the fact that Shimizu teaches the use of a three-component solder *consisting* of lead, tin, and silver. *See* Shimizu, abstract. This language excludes the use of other components. Moreover, even if antimony were added to the formulation of Shimizu, McAndrew teaches the use of at least 8.5% antimony. *See* McAndrew, Col. 3, lines 4-21. This amount of antimony, plus the minimum amount of lead taught by Shimizu (90%), leaves only 1.5% of the composition for other components, which does not permit the inclusion of the minimum amount of silver taught by Shimizu (1.5%), as well as the minimum amount of tin (1%). *See* Shimizu, abstract.

It is respectfully noted that the test for obviousness under § 103 must take into consideration the invention as a whole; that is, one must consider the particular problem solved by the combination of elements that define the invention. *See Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) (emphasis added). References must be considered in their entirety, including parts that teach away from the claims. *See* MPEP § 2141.02. Since Shimizu teaches away from using a composition that employs 8.5% of antimony, as taught by McAndrew, there is no motivation to combine these references.

No Reasonable Expectation of Success: Finally, it is respectfully noted that McAndrew explicitly teaches away from the use of silver solders, describing such alloys as leading to “brittleness, particularly at low temperatures, and an affinity for copper.” *See* McAndrew, Col. 2, lines 43-48. McAndrew goes on to note that these characteristics promote “electrical and mechanical failure after short time periods when the exposure exceeds 150 degrees C.” *Id.* at lines 48-51. Thus, one of skill in the art would not have a reasonable expectation of success when attempting to combine the antimony of McAndrew with the silver alloy of Shimizu. This evidence, quoted from the cited reference, is directly contrary to the assertion by the Office that such a combination would “achieve good mechanical strength.”

The resulting use of unsupported assertions in the Office Action does not satisfy the explicit requirements needed to demonstrate motivation as set forth by the *In re Sang Su Lee* court. Therefore, the Examiner appears to be using personal knowledge, and is respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2).

In summary, the combination of references neither teach nor suggest the claimed finish including tin, and the modification suggested by the Office does not lead to a reasonable

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expectation of success by one of ordinary skill in the art. In fact, the references teach away from such a combination. Thus, the requirements of *M.P.E.P.* § 2142 have not been satisfied; and a *prima facie* case of obviousness has not been established with respect to the Applicant's claims. It is therefore respectfully requested that the rejection of claims 1-5, 12-17, and 40-43 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

CONCLUSION

The Applicant respectfully submits that all of the pending claims are in condition for allowance, and such action is earnestly solicited. The Examiner is invited to telephone the undersigned at 210-308-5677 to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date May 8, 2007

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 8th day of May 2007.

PATRICIA A. HULTMAN

Name

Signature